



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/917,112

07/27/2001

Steven J. Furnas

LKJ-162a

9783

7590
LELAND K. JORDAN
548 HODGSON CIRCLE
WEST GROVE, PA 19390

12/11/2007

EXAMINER

LU, TOM Y

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/917,112

Applicant(s)

FURNAS ET AL.

Examiner

Tom Y. Lu

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed 10/29/2007 has been entered and considered.
2. Claim 41 was amended.
3. Claims 1-40 had been cancelled.
4. Claims 41-51 are pending.

Response to Arguments

5. Applicant's arguments filed 10/29/2007 have been fully considered but they are not persuasive.

The Berry Reference:

Applicant argues the Berry reference fails to teach the limitations of "obtain photomicrographs of said samples collected in their original, natural environment without use of a culturing agent" and "wherein said microscopic contaminants do not comprises plant anomalies." Upon further consideration of the specification, and in light of applicant's arguments, the examiner respectfully notes although Berry does not explicitly teach his invention is applicable without use of a culturing agent and in a non-plant field, it would have been obvious to a person of ordinary skill in the art to recognize if the fungi are already in spore form, there would be no need to use a culturing agent. Additionally, with regard to the limitation of "wherein said microscopic contaminants do not comprises plant anomalies," the examiner notes although Berry applies his system to study plant fungi, however, it would have been obvious to a person of ordinary skill in the art to recognize his system is not limited to the field of plant fungi because a microscope with a camera like Berry's system is capable of imaging any kind of

sample of fungi and it is illogical to conclude that one's system is capable of diagnosing fungi in corn plant (column 5, lines 18-19), but incapable of diagnosing in other samples, such as carpet piece, or ceiling tile or cotton swabs. Moreover, the limitation of a natural, original environment should not carry any significant patentable weight because a camera can take images of a sample regardless what kind of environment the sample is in as long as the image is a high quality image that allows a certified person to perform necessary analysis/diagnosis on the contaminant images. If an operator prefers taking images of a sample in its natural, original environment, he/she should be able to do so. By the same token, it would be irrational to conclude that an operator in Berry cannot put a piece of carpet with mold/fungi under the microscope for imaging. The examiner further notes the quality of an image is determined by the resolution of a camera. Since the instant invention is not claiming the structure of a camera, but use of a commercially available one as stated in the specification, page 8, lines 15-16, it does not preclude a person of ordinary skill in the art from using a same or similar camera when imaging a sample of mold or fungi that requires a high resolution camera. In another words, an operator should be able to substitute the camera freely when an application requires it as long as the substitution of the camera does not alter the other components of the system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berry et al ("Berry" hereinafter) (U.S. Patent No. 6,014,451).

- a. As per claim 41, Berry discloses a method for making possible the identification of various microscopic contaminants in samples by certified personnel in a laboratory (Berry discloses a system of making possible the identification of various plant pathogens, such as fungi, by a diagnostic technician, see abstract) by: using a person semi-skilled in focusing a microscope to obtain photomicrographs of said samples (a technician at a remote laboratory uses microscope and camera to capture images of the cultured plant tissues, which contain the plant pathogens, see column 8, lines 9-18.); electronically transmitting said photomicrographs to the laboratory (the images are transmitted to the plant diagnostic technician at a plant diagnostic laboratory, column 9, lines 5-6 and 12-13); and identifying the microscopic contaminants by a skilled mycologist or other certified person (the diagnostician identifies the pathogens/fungi at the diagnostic laboratory, column 9, lines 41-60). Berry does not teach the samples are collected in their original, natural environment because the tissue under microscope is cultured in a petri dish to grow the pathogenic fungi to fungal spores. However, it is obvious to a person of ordinary skill in the art to recognize that a sample with fungal spores would not require culturing, and can be imaged in its natural environment. and if the sample is a small piece of plant tissue or other pieces, then the fungal spores are imaged in their original environment when the small tissue or piece is placed under microscope. At the time the invention

was made, a person of ordinary skill in the art would have been motivated to place such sample of fungal spores in its original and natural state under microscope because it is beneficial to study a sample with contaminant in its original, natural environment without altering the state of the contaminants. With regard to “wherein said microscopic contaminants do not comprises plant anomalies,” the examiner notes a microscope with a camera like Berry’s system is capable of imaging any kind of sample of fungi, and it is illogical to conclude that one’s system is capable of diagnosing fungi in corn plant (column 5, lines 18-19), but incapable of diagnosing in other samples, such as carpet piece, or ceiling tile or cotton swabs. Moreover, the limitation of a natural, original environment should not carry any significant patentable weight because a camera can take images of a sample regardless what kind of environment the sample is in as long as the image is a high quality image that allows a certified person to perform necessary analysis/diagnosis on the contaminant images. If an operator prefers taking images of a sample in its natural, original environment, he/she should be able to do so. By the same token, it would be irrational to conclude that an operator in Berry cannot put a piece of carpet with mold/fungi under the microscope for imaging. The examiner further notes the quality of an image is determined by the resolution of a camera. Since the instant invention is not claiming the structure of a camera, but use of a commercially available one as stated in the specification, page 8, lines 15-16, it does not preclude a person of ordinary skill in the art from using a same or similar camera when imaging a sample of mold or fungi that

requires a high resolution camera. In another words, an operator should be able to substitute the camera freely when an application requires it as long as the substitution of the camera does not alter the other components of the system.

- b. As per claim 42, Berry discloses wherein said steps of employing, transmitting are completed “real time” (the images are captured by the camera in real time from the microscope column 8, lines 54-64, and such images are transmitted electronically to the diagnostic station in real time column 9, lines 13-14).
- c. As per claim 43. Berry teaches the steps of employing and transmitting are completed in “real time”. However Berry did not explicitly teach the steps of employing, transmitting and identifying are completed in less than 24 hours. Nonetheless, it is obvious to a person of ordinary skill in the art to recognize that the Berry’s system is capable of completing the diagnosis within 24 hours because the electronic transmission of the microscopic images in combination with sophisticated diagnostic equipments at the diagnostic laboratory would allow the diagnostic technician to speed up the diagnosis, column 7, lines 40-49, which otherwise would have taken days, column 1, lines 50-59. And the goal of Berry’s invention is to reduce the turn-around time for verification of the plant pathogens, column 2, lines 52-53. The examiner notes although in the case of fungi, Berry teaches the lesion-bearing tissue is cultured 24-72 hours for fungal spores before obtaining the image data, in the case of fungal spores that are readily available on a sample, the 24 to 72 hours of culturing process is not required.

- d. As per claim 44, as explained in claim 41, when a plant tissue already contains fungal spores, there is no need for growth media.
- e. As per claim 45, Berry at column 8, lines 9-18, teaches placing cultured tissues on microscopic slides for imaging. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to recognize the use of microscope slides is a mere option, but not a must. Since the camera is still capable of imaging the sample in its natural state without using the microscopic slides, there is no need for microscopic slide if one is motivated not to do so. Additionally, such option is evidenced in claim 47, when the applicant elects to use a microscopic slide.
- f. As per claim 46, as explained in claim 41, Berry's system is capable of capturing fungal spores on a corn plant tissue, it should also be capable of capturing fungal spores from pieces of carpet or ceiling tile or cotton swabs.
- g. As per claim 49, Berry does not explicitly state its camera captures images in resolutions of at least 400,000 pixels by 800,000 pixels. However, it is understood in the art that such high resolution can be easily achieved by use a high-resolution lens or CCD sensor. Additionally, Berry at column 8, lines 15-16, teaches high-magnification images are critical to accurate diagnosis. Furthermore, Berry teaches certain changes and modification are necessary in practice his invention, column 13, lines 9-10. Therefore, a person of ordinary skill in the art would be motivated to modify Berry's system with a camera of a resolution of 400,000 pixels by 800,000 pixels if it is required.

h. As per claim 51, see explanation in claim 41.

7. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berry in view of Linehop (U.S. Patent No. 5,944,532). The arguments in Paragraph 2 above as to the applicability of Berry are incorporated herein.

As per claim 47, Berry discloses placing a plant tissue of fungal spores under a microscope to be imaged. However, Berry does not teach fungal spores are obtained from an air-sampling mechanism. Linehop teaches it is well known in the art to collect fungal spores by an air-sampling mechanism and place the spores under the microscope for analysis (column 1, lines 17-23). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Berry's system to analyze the fungal spores captured by an air-sampling mechanism. At the time the invention was made, one would be motivated to do so since Berry's system is capable of analyzing fungal spores on microscopic slides, column 8, lines 9-15, it is logical that such system is also capable of analyzing fungal spores captured by another means because after all, they are both fungal spores, and how they are captured is irrelevant.

8. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berry in view of Bacus et al ("Bacus" hereafter) (U.S. Patent No. 6,272,235). The arguments in Paragraph 2 above as to the applicability of Berry are incorporated herein.

As per claim 48, Berry teaches a camera is used for capturing the images from the microscope. However, Berry is silent on the position of the camera in the microscopic system. Bacus teaches a similar system about capturing sample image using a camera in a microscopic system. Bacus teaches the placement of the camera is directly over the sample, see figure 10 in Bacus. At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to modify Berry's system to place the camera above the sample. One would be motivated to do so because it allows the camera to capture the sample image through the high-resolution lens of the microscope to obtain high magnification images.

9. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berry in view of White et al (U.S. Patent No. 4,736,826). The arguments in Paragraph 2 above as to the applicability of Berry are incorporated herein.

As per claim 50, Berry does not explicitly teach the camera in his system is operated with battery power nor did he explain the camera is transported by a remote controlled vehicle into air ducts or beneath building structure. White teaches a mobile robot as a transporter for carrying equipments. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Berry's system with a mobile robot as taught by White, and by having a camera on a robot, it would be reasonable to assume that the camera would now be operating on battery power. One of ordinary skill in the art would have been motivated to make such modification because the modified system allows the robot to obtain images in hazardous areas where human operators are not suitable.

Conclusion

10. **Examiner note:** Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teaching for the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references

in entirely as potential teaching all or part of the claimed invention, as well as the context of the a passage as taught by the prior art or disclosed by the examiner.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y. Lu whose telephone number is (571) 272-7393. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571)-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
09/917,112
Art Unit: 2624

Page 11

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TYL



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600